

**Remarks**

The above Amendments and these Remarks are in reply to the outstanding Office Action. Claims 1-13, 15-45 and 47 are presented herewith for consideration. Claims 1, 4-9, 11, 15-16, 19-27, 34, 36-37, 39 and 45 are amended. Some claims have been amended to correct typographical errors. Claims 14 and 46 have been cancelled to expedite prosecution.

Claims 4-9, 19 and 20 have been objected to because of informalities. As suggested by the Office Action, the claims have been amended to correct the informalities.

Claims 1-13 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,735,212 B1 (*Calamvokis*).

Claims 14-30 and 45-47 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Publication No. 2003/0227926 A1 (*Ramamurthy, et al.*).

Claims 31-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Ramamurthy, et al.* in view of *Calamvokis*.

I. **Rejection of Claims 1-13 under 35 U.S.C. §102(e)**

Claims 1-13 are rejected under 35 U.S.C. §102(e) as being anticipated by *Calamvokis*.

Claim 1 calls for, among other elements:

generating a shuffled request matrix, including;

rearranging, according to the shuffle control, a set request matrix elements  
selected from a group comprising request matrix rows and request matrix  
columns; and

rearranging, according to a reversed shuffle control, a set of matrix elements  
comprising a member of the group that was not selected to be rearranged  
according to the shuffle control...

In rejecting claim 1, the Office Action cited columns 7 and 8, lines 33-41 and lines 5-10 in *Calamvokis* for disclosing “rearranging, according to the shuffle control...” and column 9, lines 30-42 for disclosing “rearranging, according to a reversed shuffle control...”

The Applicant’s attorney respectfully disagrees. The cited passages do not disclose “a reversed

shuffle control" nor "rearranging, according to a reversed shuffle control, a set of matrix elements comprising a member of the group that was not selected to be rearranged according to the shuffle control... The cited passages disclose a "shuffler" generally and "a row shuffler circuit [that shuffles the rows in a single column]" The cited passages do not disclose "rearranging, according to a reversed shuffle control... [either "request matrix rows" or "request matrix columns"] that was not selected to be rearranged according to the shuffle control..."

The instant Specification at least at pages 12-13 describes using "a reversed shuttle control:"

Every other cell time (cell times 0 and 2 in the figure), the rows and the columns are each shuffled according to the shuffle control value. In alternate cell times (cell times 1 and 3 in the figure), the rows are shuffled according to the shuffle control value and the columns are shuffled according to the reversed shuffle control value. Realize that both rows and columns can be shuffled using the same control values. The use of the reverse shuffle control in alternate cell times ensures fairness and good throughput.

Claims 2-12 depend from claim 1 and therefore are patentable for at least the reasons stated above in regard to claim 1.

It is therefore respectfully requested that the rejection of claims 1-13 under 35 U.S.C. §102(e) be withdrawn.

II. Rejection of Claims 14-30 and 45-47 under 35 U.S.C. §102(e)

Claims 14-30 are rejected under 35 U.S.C. §102(e) as being anticipated by *Ramamurthy, et al.*

Claims 15 and 16 have been amended to include the limitations of claim 14.

Claim 15 calls for, among other elements:

when an input has zero credits for an egress port, disallowing any requests from the input for the egress port from proceeding to the arbiter; and

when all of the inputs have zero credits for the egress port, resetting the credits, comprising reassigning credits to each of the various inputs in proportion to the predetermined bandwidth allocation for the egress port.

In rejection claim 15, the Office Action stated *Ramamurthy, et al.* discloses the above elements in paragraphs [0050] and [0110]. The Applicant's attorney respectfully disagrees. Paragraphs [0050] and [0110] do not disclose "disallowing any requests from the input for the egress port from proceeding to the arbiter [when an input has zero credits for an egress port]..." In contrast, *Ramamurthy, et al.* at paragraph [0050] discloses allowing requests with "zero credits."

[A] VOQ having at least one credit is selected, and a high-priority class-independent request is generated designating the output port associated with the selected VOQ. Otherwise, a non-empty VOQ is selected, and a low-priority class-independent request is generated designating the output port associated with the selected VOQ.

Further, the last sentence of Paragraph [0167] states “The credits are periodically replenished.” as opposed to “resetting the credits [when all of the inputs have zero credits for the egress port]”

Claim 16 calls for, among other elements:

when an input has a request for an egress port, the input has credits  $\leq$  zero for the requested egress port, and no other inputs have pending requests for the egress port, allowing the request to proceed to the arbiter and decrementing the credits of the input for the egress port by one.

In rejecting claim 16, the Office Action stated *Ramamurthy, et al.* discloses the above elements in paragraphs [0050] and [0126]. The Applicant’s attorney respectfully disagrees. Paragraphs [0050] and [0126] do not disclose when “credits  $\leq$  zero for the requested egress port...allowing the request to proceed to the arbiter and decrementing the credits of the input for the egress port by one.” In contrast, neither paragraph [0050] nor paragraph [0126] discloses “credits” that are negative or become negative by “decrementing the credits of the input for the egress port by one.”

Claims 17-23 depend from claims 15 and 16 and therefore are patentable for at least the reasons stated above in regard to claims 15 and 16.

Claim 24 calls for, among other elements: “wherein the credit update circuitry reassigned the queue’s number of credits to the initial number of credits responsive to the each queue’s number of credits being zero” and therefore is patentable for at least the reasons stated above in regard to claim 15. The last sentence of Paragraph [0167] states: “The credits are periodically replenished.”

Claims 27-30 depend from claim 24 and therefore are patentable for at least the reasons stated above in regard to claim 24.

Claim 25 calls for, among other elements: “wherein all data on the ingress ports is assigned a same priority for purposes of determining whether to allow a request to proceed to the arbiter.” In rejecting claim 25, the Office Action cited paragraph [0084]. The Applicant’s attorney respectfully disagrees. In particular, “all data on the ingress port” is not “assigned the same priority...” *Ramamurthy, et al.* discloses using

“classes based on their traffic characteristics and service requirements and by reserving enough bandwidth for each class...” paragraph [0014]. See also paragraph [0011].

Claim 26 calls for, among other elements: “when a requesting queue’s number of credits is equal to or less than zero, the requesting queue is assigned a different priority that is lower than the initially assigned priority...” *Ramamurthy, et al.* does not disclose “assign[ing] a different priority that is lower than the initially assigned priority [when a requesting queue’s number of credits is equal to or less than zero]. Paragraphs [0050] and [0090], as cited in the Office Action, do not disclose such a limitation.

Amended claim 45 calls for, among other elements: “reassigning the plurality of credit values to each of the respective plurality of inputs in proportion to the predetermined bandwidth allocation for the egress port responsive to the plurality of credit values being zero” and therefore is patentable for at least the reasons stated above in regard to claim 15. The last sentence of Paragraph [0167] states: “The credits are periodically replenished.”

Claim 47 depends from claim 45 and therefore is patentable for at least the reasons stated above in regard to claim 45.

It is therefore respectfully requested that the rejection of claims 14-30 under 35 USC § 102(e) be withdrawn.

III. Rejection of Claims 31-41 under 35 U.S.C. §103(a)

Claims 31-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Ramamurthy, et al.* in view of *Calamvokis*.

The Applicant’s attorney respectfully disagrees. Claims 31-41 are patentable for at least the reasons stated above in regard to the rejection of claims 1-13.

It is therefore respectfully requested that the rejection of claims 31-41 under 35 USC § 103(a) be withdrawn.

IV. Conclusion

Based on the above amendments and these remarks, reconsideration of claims 1-13, 15-45 and 47 is respectfully requested.

Should the Examiner have any questions with regard to the instant response, the Examiner is respectfully requested to contact the undersigned attorney.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit

Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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